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BULLETIN
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Five new species of *Viola* from the South

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(WITH PLATES 34 AND 35)

I wish to report some results of my study of our southern violets during the past four years. This has consisted of field work during March and April of these years in portions of each of the eleven states covered by Dr. Small's Flora, and in the culture in my home garden of all known species and varieties of this region. My work has been greatly furthered by the kind assistance of many collectors and students of the genus, to whom I would acknowledge my grateful indebtedness, and to some of whom I allude personally in the following report.

The five new species that I describe in the present paper have been observed for at least two seasons, as they have developed from the seed to the mature plant. The first is from Florida, and is allied to *Viola Langloisii* Greene of southern Louisiana and Texas.

***Viola chalcosperma* sp. nov.**

Plant glabrous, heterophyllous; leaves at the beginning and at the close of the season's growth uncut, the former cordate, 2-3 cm. long, the latter truncate at the base, broadly deltoid, 4-5 cm. long; vernal leaves cordate, 3-lobed, the middle lobe ovate, acute, the lateral more or less incised; flowers small, lilac-purple, raised above the leaves on slender peduncles; lateral petals bearded, odd petal sparsely villous, all finely purple-veined; cleistogamous flowers sagittate, on ascending peduncles; capsule gray, tinged with purple at base, ellipsoidal, about 11 mm. long, 5 mm. thick; persistent sepals purplish, lanceolate, 5 mm. long; auricles 3-4

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mm. long, the three outer with one or more sharp teeth; seeds the color of old bronze, 1.5 mm. long, about 50 in a capsule.—In wet soil in a wooded ravine, Jacksonville, Florida; the only known station.

This plant was first called to my attention by Miss A. M. Ryon, of New London, Conn., who sent living specimens in the summer of 1907, collected the preceding March at Jacksonville, Fla., by Mrs. E. K. Comstock. Numerous plants were raised from seed the following season and seemed to represent an unrecognized species. On a trip to Florida in March 1909, guided by Mrs. Comstock's precise directions, I readily found her station. The plants were abundant, and collections were made on March 21 and on April 9, which will soon be distributed.

The four following belong to the group represented by *Viola palmata* and *V. papilionacea*, and marked by ovoid cleistogamous flowers on prostrate, usually short, peduncles.

***Viola floridana* sp. nov.**

Leaves at time of petaliferous flowering on spreading petioles, cordate, acute, finely crenate-serrate, often somewhat puberulent above, 2–3 cm. wide, 3–4 cm. long, leaves twice as long and wide appearing soon after, on long erect petioles, glabrate, sometimes persisting through the winter; corolla whitish or pale violet, on peduncles much surpassing the leaves, the odd petal glabrous; apetalous flowers under soil or dead leaves, narrowly ovoid-acuminate; their ripe capsules blotched with purple, trigonous-cylindric, about 16 mm. long, 7 mm. thick, on decumbent peduncles; sepals broadly lanceolate, about one third the length of capsule; seeds 2 mm. long, salmon-colored or dark brown, about 60 in a capsule.—Moist rich woodland, northern and central Florida.

This I first collected March 13, 1907, near Jacksonville, Fla., on an embankment for a street railway across a little marsh near Woodlawn Cemetery. Plants sent home at that time, or their offspring, have since been growing in the Middlebury garden. In March and April, 1909, I found the plant in several other stations near Jacksonville, and at stations widely separated in Volusia County—near the famous DeLeon Spring, on the shores of Lake Beresford, in an orange grove on a shell island near the outlet of this lake, on the edge of a tilled field near Lake Munroe, and in moist woodland near Deep Creek. In flower and fruit it

resembles *V. esculenta*, but its constantly uncut leaves on erect petioles and its habitat in well drained soil seem to mark it as distinct. *V. esculenta* was not found in Volusia County.

***Viola rosacea* sp. nov.**

Acaulescent; leaves at vernal flowering narrowly ovate-cordate, acute or acuminate, crenate-serrate, 2-4 cm. long, sparsely hirtellous above; later leaves broadly ovate, subcordate, acuminate, glabrous, 5-7 cm. long; corolla rose-purple, about 2 cm. broad, spurred petal glabrous or slightly villous; cleistogamous flowers ovoid, on prostrate peduncles; their mature capsules ellipsoid, about 12 mm. long, 6 mm. thick, purple-dotted, enclosed for half their length in lanceolate sepals; the auricles of the three outer sepals short, appressed, entire, rounded; seeds buff, 2 mm. long, about 50 in a capsule.—Dry open woodland, Point St. Martin, near Biloxi, Mississippi; well drained borders of bayous, Crowley, Louisiana.

I first observed this species March 19, 1908, in a grove of deciduous trees on the fair-ground at Crowley, La. On the low, often flooded, borders of the neighboring bayou, *V. Langloisii* grew in profusion; but *V. rosacea* was confined to stretches of woodland above the flood-plain. I afterward collected it in similar situations in adjacent townships. The plant even at that early date was out of flower, with leaves and capsules nearly mature. Moreover, live plants shipped to Vermont failed to furnish flowers the following spring. Last March on my way South Dr. Small showed me a puzzling specimen of *Viola* collected by Professor S. M. Tracy at "Point St. Martin," Miss., March 10, 1898, no. 5008. A few days later I had the great pleasure of enjoying Professor Tracy's hospitality at his beautiful home on the north shore of the Bay of Biloxi, and of learning that the station for his 5008 was on his own premises, that in fact the violet was then in flower on the grounds in front of his house. In the early morning we examined the plant. The flowers were beautifully rose-colored, a feature quite unusual in the genus. A mist of dew on the foliage brought out strikingly the minute stiff pubescence of the upper surface of the leaves. This and the Crowley plant proved to be identical. A half dozen vigorous specimens from each locality have the past summer been growing side by side in the Vermont garden.

***Viola Lovelliana* sp. nov.**

Plant often minutely hoary-pubescent on the upper part of the petiole and the adjacent lower surface of the blade, the pubescence elsewhere sparse and obscure; leaves cordate at base, earliest often uncut, later ones hastately 3-lobed, the middle lobe much the longest, lanceolate, sometimes contracted at the base and undulately serrate, the lateral lobes divaricate, either lunate or variously 2-3-cleft; leaves at petaliferous flowering 2-5 cm. long, those of late summer twice as long, often less deeply cut, or uncut; flowers violet-purple, on petioles often taller than the leaves, the three lower petals villous at the throat and marked with dark purple lines; cleistogamous flowers and immature fruit on prostrate peduncles; ripe capsules purple-dotted, trigonous-ellipsoid, about 14 mm. long, 7 mm. thick; sepals broadly lanceolate, acute, one third the length of capsule; auricles short, appressed, rounded, sparsely ciliate; seeds buff, 2 mm. long.—Sparsely wooded hillsides and knolls; from southern Louisiana to eastern Oklahoma.

Live plants of this, as an unknown species, were sent me in March, 1906, by Mrs. Phoebe Lovell, of Crowley, La. The plants did well in the garden; and mature leaves and fruit from cleistogamous flowers were obtained the following August, and petaliferous flowers in the spring of 1907. On my southern journey in March, 1908, I visited the station, a recent pine-chopping on loamy clay, more or less broken by low ravines. Four additional live plants were shipped home, and from each of these, and from their seedlings in 1909, many specimens were made of the mature plant.

The species turns out to be a common one in the western portion of the territory covered by Dr. Small's Flora. In April, 1908, I collected it in open woodlands near Muskogee, Okla., a mile from the Arkansas River; also, in the same state, under dwarf oaks on the slopes of a rocky hill at Eufaula, and in the vicinity of Stigler. In March, 1910, I obtained beautiful specimens at Mansfield, La., in a piece of woodland cut up by deep ravines; and also at Mena, Ark. I have in addition to these specimens one from Texarkana, Ark., "Pine woods, April 6, 1905, *B. F. Bush*, no. 2237."

***Viola Egglestonii* sp. nov.**

Plant acaulescent, of spreading habit, especially when young; leaves truncate at base, often flabellately decurrent, rarely subcordate; early leaves simply 3-5 lobed, later ones 3-parted, with

the middle or all three primary segments 2-3-cleft, the divisions oblanceolate or linear, crenately serrate toward the summit and bearing a few long narrow teeth below, the central division much the widest; flowers violet-purple, lateral petals bearded at the throat, spurred petal somewhat villous; cleistogamous flowers and fruit on short underground peduncles till seeds ripen; capsules green, turning gray, broadly ellipsoid, about 8 mm. wide and 13 mm. long, with lanceolate sepals one third as long; their auricles short, appressed, the three outer dentate; seeds brown, 2.5 mm. long. (PLATES 34 and 35)—Limestone barrens, West Nashville, Tennessee, *W. W. Eggleston, no. 4421*, May 26, 1909, type. Flowers and mature fruit and leaves observed from plants transferred to garden at Middlebury, Vermont.

This species is so distinct that at first sight of the growing plant one might not suspect to what known violets it was nearest of kin. It is a vigorous plant under cultivation. In the early stages of its growth the leaves spread out horizontally in all directions, and the roots penetrate deeply into the soil. In mid-summer, when cespitose, the leaves are most of them erect and long-petioled. I know of no violet whose cleistogamous flowers and fruit are more thoroughly concealed under the soil; and as a result the capsules are rarely eaten into by beetles, often troublesome pests when one is endeavoring to collect violet seeds. Only a day or two before its seeds ripen does this unique species extrude its round green capsule from the ground, and lift it erect from its nodding position on the peduncle. Then after an hour or two of fair weather the three broad valves open widely, disclosing its large brown seeds; and in another hour, by the contraction of the thin sides of the valves, the seeds are pinched out and flung in all directions.

This violet has as yet been found at one station only. But it may be expected to appear, to the collector who is looking for it, in many other of the extensive limestone barrens of Tennessee, and of northern Alabama and Georgia.

The types of the five species described in the present paper will be deposited in the herbarium of the New York Botanical Garden.

MIDDLEBURY, VERMONT.

Explanation of plates 34 and 35

PLATE 34

Viola Egglestonii Brainerd, natural size. Specimen collected at West Nashville, Tennessee, by W. W. Eggleston, May 26, 1909, *no. 4421*—type.

PLATE 35

Viola Egglestonii Brainerd. From three plants grown in the garden of E. Brainerd, Middlebury, Vt., transplanted from West Nashville, Tenn., May, 1909. A. Flowering specimen, May 10, 1910; $\times \frac{2}{3}$. B. A full-grown summer leaf, July 14, 1910; $\times \frac{2}{3}$. C. A mature capsule from cleistogamous flower, Oct. 1910; $\times \frac{1}{3}$.



VIOLA EGGLESTONII BRAINERD



VIOLA EGGLESTONII BRAINERD